

Abstract

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Method for automated measurement of the ohmic rotor resistance ( $R_r$ ) of an asynchronous machine (1) controlled via an inverter (8) while being acted upon by a non-rotating field, the method involving

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a. measuring the ohmic stator resistance ( $R_s$ ), the leakage inductances ( $L_{\sigma s}$ ,  $L_{\sigma r}$ ) and the main inductance ( $L_m$ ) of the asynchronous machine,

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b. leading a testing signal ( $U_{sa}$ ) being formed by a predetermined direct signal with a superimposed alternating signal to a phase winding (a) of the asynchronous machine, the frequency of the alternating signal corresponding approximately to the nominal slip frequency ( $f_s$ ) of the asynchronous machine (1),

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c. measuring the amplitude and the phase ( $\varphi$ ) of the phase signal ( $\bar{I}_{sa}$ ) resulting from the testing signal, and

d. calculating the ohmic rotor resistance ( $R_r$ ) from the measured values according to a) and c).

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Measuring the ohmic rotor resistance in accordance with this method can be performed in a very short time, when the inductances and the ohmic stator resistance are known.

Further, current displacement does not appear due to the low frequency of the alternating signal.

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Fig. 1